Honors Biology Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
NDHS Per: \_\_\_\_\_\_\_ Date: \_\_\_\_\_\_

**DNA and Protein Synthesis Test  
STUDY GUIDE**

**DNA Structure:**Nucleotide Structure: draw and label a generalized picture  
Watson and Crick  
Rosalind Franklin  
DNA:  
 - twisted ladder, double helix  
 - anti-parallel   
 - draw the four nucleotides linked forming a short strand of DNA

**DNA Replication:**Where and When  
Enzymes and Proteins involved  
HOW  
 - semi-conservative  
 - parent and daughter strands  
 - complimentary  
 - importance of 5’ to 3’ bonding   
 - leading strand  
 - lagging strand & Okazaki fragments   
Replication Errors  
Telomeres  
Differences in Prokaryotes

**Polypeptide Synthesis**Types of RNA, their roles and their structures  
Differences between RNA and DNA  
Code, Codon, Anti-codon relationship  
Transcription: Where, What, and How  
 - RNA polymerase  
RNA Processing: Where, What, and How  
 - 5’ cap, polyadenylated tail, introns and exon  
Translation: Where, What, and How  
  
 **YOU MUST BE ABLE TO EXPLAIN THE WHOLE PROCESS OF TRANSLATION   
– it will be the major essay**   
DNA 🡪 mRNA 🡪 Amino acid sequence using Codon Chart – the chart will be on the test

**Mutations and Genetic Disorders:**Gene Mutations:  
 - point mutations: Silent, Missense, Non-sense  
 - Frame shift mutations  
Chromosomal Mutations:   
 - Anueploidy: monosomy and trisomy  
 - Polyploidism  
 - Cross over errors

Mutagens and Carcinogens  
 -Environmental factors